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PRINCIPAL INVESTIGATOR: Gerson Peltz, M.D.

CONTRACTING ORGANIZATION: The University of Texas at Brownsville
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14. ABSTRACT
The purpose of this Minority Institution Partnership Training Award is to train University of Texas at Brownsville (UTB) faculty to conduct breast cancer research by collaborating with faculty from the University of Texas-Houston School of Public Health (UTSPH). Three UTB faculty will undergo intensive training provided by six UTSPH faculty during year 1. To reinforce training, faculty from UTB and UTSPH will conduct a clinic-based case-control study of breast cancer to investigate its' association with hormones, diet and body size in years 2 through 4. Specific aims include: 1) to provide UTB faculty training through classes, presentations and seminars to gain knowledge of epidemiology, proposal development, behavioral sciences, and biostatistics offered by UTSPH faculty, and 2) to design and conduct a clinic-based case-control study to include completion of a questionnaire, anthropometry and a blood draw. During the third year of the project, Dr. Peltz (UTB) received his Masters of Public Health, and Dr. Johnson (UTB) audited an epidemiology and a behavioral science course. Data collection continued for the clinic-based case-control study, the South Texas Women's Health Project. To increase the number of breast cancer cases, Dr. Peltz (UTB) requested, but did not receive, supplemental funding from the Department of Defense to add two staff members to begin interviewing in Hidalgo county. Dr. Sanderson (UTSPH) became principal investigator of a project funded by the National Center on Minority Health and Health Disparities to conduct a study of women diagnosed with high risk-human papillomavirus which places them at high risk of cervical cancer. Dr. Sanderson (UTSPH) submitted grants to conduct a validation study and awareness campaign of family history of breast cancer among South Texas Women's Health Project subjects, and to conduct a case-only study of prostate cancer.

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Epidemiology/biostatistics, nutrition, hormone metabolism

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Introduction

The purpose of this Minority Institution Partnership Training Award is to train University of Texas at Brownsville (UTB) faculty to conduct breast cancer research by collaborating with faculty from the University of Texas-Houston School of Public Health (UTSPH). Three UTB faculty will undergo intensive training provided by six UTSPH faculty during year 1. Additional training will take place in subsequent years. To reinforce training, faculty from UTB and UTSPH will conduct a clinic-based case-control study of breast cancer to investigate its' association with hormones, diet and body size in years 2 through 4. Specific aims are: 1) to provide UTB faculty training through classes, presentations and seminars to gain knowledge of epidemiology, proposal development, cancer epidemiology, intervention mapping, field epidemiology, biostatistics, and nutrition epidemiology offered by UTSPH faculty in-person from Brownsville and via ITV from Houston, 2) to design and conduct a clinic-based case-control study to include completion of a questionnaire, anthropometry and a blood draw, 3) to disseminate findings to the Texas Department of State Health Services, the Department of Defense, and local health providers and health clinics, and 4) to submit proposals to conduct larger population-based case-control studies of breast cancer in the Lower Rio Grande Valley.

Body

This project is occurring in two phases, the training phase (year 1) and the investigation phase (years 2 through 4). The only training task that was fully completed during the first year of the project was training task 5. The training tasks that were fully completed during the second year of the project were training tasks 4 and 6. During the third year of the project, we fully completed training task 1 by Dr. Peltz (UTB) taking environmental health and thesis in Fall, 2005, thesis in Spring, 2006, and receiving his Master's of Public Health in Spring, 2006. Dr. Estrada (UTB) left UTB in Summer, 2005 and was not replaced on the project. Although Dr. Johnson (UTB) will not earn a Master's of Public Health degree he audited introductory epidemiology in Fall, 2005, and a behavioral sciences course in Spring, 2006. Dr. Peltz (UTB) conducted his thesis using data from the leptin project and has submitted it for publication to the Archives of Medical Research. We further completed training task 2 by Dr. Sanderson (UTSPH) continuing to receive funding from the Texas Cancer Council to investigate the possibility of utilizing electronic pathology lab reporting to the Texas Cancer Registry on the Texas and Mexico sides of the border. We further completed training task 3 by Dr. Peltz (UTB) requesting, but not receiving, supplemental funding from the Department of Defense (DOD) to add two staff members to begin interviewing in Hidalgo county. We further completed training task 7 by obtaining continuing institutional review board (IRB) approval from the University of Texas at Brownsville on November 11, 2005 (IRB of record for Valley Regional Medical Center is pending), from the University of Texas Health Science Center at Houston on September 20, 2006 (IRB of record for Harlingen Medical Center), from the Department of Defense on April 3, 2006, from the Texas Department of State Health Services on March 17, 2006, and from Valley Baptist Medical Center-Harlingen on July 20, 2006. Valley Baptist Medical Center-Brownsville initial institutional review board approval is valid through August 31, 2007, and Dolly Vinsant Memorial Hospital has been removed as a study site since they stopped performing mammograms. We further completed training task 8 by attempting to revise the study design to include additional study sites in Hidalgo county.

During the third year of the project we continued in the investigation phase of the project. We further completed investigation task 1 by recruiting 94 women with breast cancer (99.0% of eligible breast cancer cases), 322 women receiving diagnostic mammograms (95.0% of eligible high risk controls), and 302 women receiving screening mammograms (83.9% of eligible controls) as of September 26, 2006. Of respondents, blood had been drawn on 52 women with breast cancer (55.3% of responding breast cancer cases), 314 women receiving diagnostic mammograms (97.5% of responding high risk controls), and 281 women receiving screening mammograms (93.4% of responding low risk controls). We further completed investigation task 2 by conducting in-person and telephone interviews on breast cancer risk factors, and by Dr. Sanderson (UTSPH) submitting a grant to the Susan G. Komen Foundation to conduct a validation study and awareness campaign of family history of breast cancer among South Texas Women's Health Project subjects. We further completed investigation task 3 by collecting anthropometric measurements, blood and urine. We further completed investigation task 4 by abstracting medical records for breast cancer screening, diagnosis and treatment. We further completed investigation task 5 by processing and storing blood and urine samples. We further completed investigation task 6 by completing enzyme-linked immunosorbent assays on hormones and growth factors. We further completed investigation task 7 by completing high-performance liquid chromatography analysis for urinary phytoestrogen. We further completed investigation task 8 by entering data for all questionnaires and assays. We further completed investigation task 9 by performing interim statistical analysis to assess data quality, and by presenting preliminary findings at the Department of Defense Historically Black Colleges and Universities/Minority Institutions Breast Cancer Research Program Reverse Site Visit, in Baltimore, MD. We will fully complete investigation task 10 by performing final statistical analysis to test study hypotheses at the end of the study. We partially completed investigation task 11 by presenting on cancer registration at the Certified Tumor Registrar workshop on July 27, 2006 and at the Rio Grande Health Information Management Association conference on September 22, 2006. We partially completed investigation task 12 by Dr. Sanderson (UTSPH) becoming principal investigator of a project funded by the National Center on Minority Health and Health Disparities to conduct a study of women diagnosed with high risk-human papillomavirus which places them at high risk of cervical cancer, and by Dr. Sanderson (UTSPH) submitting an unfunded grant to the National Cancer Institute to conduct a case-only study of prostate cancer utilizing the newly gold certified Texas Cancer Registry as a source of cases. We will partially complete, further complete or fully complete investigation tasks 13 through 16 in subsequent years.

During the fourth year of the project we will partially complete, further complete, or fully complete training tasks 2, 3, 7 and 8, and investigation tasks 1 through 16.

Key Research Accomplishments

- Fully completed training task 1 by Dr. Peltz (UTB) receiving his Master's of Public Health, and by Dr. Johnson (UTB) auditing and epidemiology and a behavioral sciences course. Dr. Peltz (UTB) received funding to conduct a pilot study of body composition and leptin concentration. Dr. Peltz (UTB) conducted his thesis using data from the leptin project and has submitted it for publication to Archives of Medical Research.

- Further completed training task 2 by Dr. Sanderson (UTSPH) continuing to receive funding from the Texas Cancer Council to investigate the possibility of utilizing electronic pathology lab reporting to the Texas Cancer Registry on the Texas and Mexico sides of the border.

- Further completed training tasks 3, 7, and 8 by obtaining continuing institutional review board approval from several entities, and by revising the study design as needed. Dr. Sanderson (UTSPH) received additional funding to conduct a pilot study of the South Texas Women's Health Project. Dr. Peltz (UTB) received supplemental funding from the Department of Defense to add urinary excretion of phytoestrogen to the South Texas Women's Health Project.

- Partially completed investigation tasks 1 through 9 by recruiting breast cancer cases and controls; conducting in-person and telephone interviews; collecting anthropometric measurements and blood; abstracting medical records; processing and storing blood samples; completing enzyme-linked immunosorbent assays; completing high-performance liquid chromatography analysis; entering data for all questionnaires and assays; and performing interim statistical analysis. Dr. Sanderson (UTSPH) submitted a grant to the Susan G. Komen Foundation to conduct a validation study and awareness campaign of family history of breast cancer among South Texas Women's Health Project subjects.

- Partially completed investigation task 12 by Dr. Sanderson (UTSPH) becoming principal investigator of a project funded by the National Center on Minority Health and Health Disparities to conduct a study of women diagnosed with high risk-human papillomavirus which places them at high risk of cervical cancer, and by Dr. Sanderson (UTSPH) submitting an unfunded grant to the National Cancer Institute to conduct a case-only study of prostate cancer utilizing the newly gold certified Texas Cancer Registry as a source of cases

Reportable Outcomes

1) Manuscripts

Sanderson M, Fernandez ME, Dutton RJ, Ponder A, Sosa D, Peltz G. Risk behaviors by ethnicity and Texas-Mexico border residence. Ethnicity Dis 2006;16:514-520.

Coker AL, Sanderson M, Fadden MK. Psychosocial stress, coping and prostate cancer. Ethnicity Dis (In Press).

Sanderson M, Coker AL, Perez A, Du XL, Peltz G, Fadden MK. A multilevel analysis of socioeconomic status and prostate cancer risk. Ann Epidemiol (In Press).

Meyer TE, Coker AL, Sanderson M, Symanski E. A case-control study of farming and prostate cancer in African American and Caucasian men. Occup Environ Med (In Press).

Sanderson M, Daling JR, Malone KE, Doody DR. Perinatal factors and mortality from breast cancer. Cancer Epidemiol Biomark Prev (In Press).

2) Abstracts

Peltz G, Sanderson M. South Texas Women's Health Project: Training partnership and preliminary results. Department of Defense Historically Black Colleges and Universities/Minority Institutions Breast Cancer Research Program Reverse Site Visit, Baltimore, MD, April 2006.

Sanderson M, Coker AL, Fernandez, ME, Tortolero-Luna G. Cancer disparities, reporting and prevention among Texas-Mexico border Hispanics. Cancer Health Disparities Summit, Bethesda, MD, June, 2006.

Sanderson M, Sparrow P, Peltz G, Perez A, Johnson M. Association between breast and cervical cancer screening and self-rated health by ethnicity. Am J Epidemiol 2006;163:S143.

Peltz G, Sanderson M, Perez A, Ochoa D, Fadden MK. Leptin and body composition in Mexican Americans. Annual Meeting of the North American Society on Obesity, Boston, MA, October, 2006.

3) Grants

Name:	Insulin Resistance and Breast Cancer
Funding Agency:	National Institute on Minority Health and Health Disparities
Period of Funding:	March 1, 2003 – February 28, 2005
Amount:	$84,000 (total direct)

Name:	Cancer Disparities, Reporting and Prevention among Texas-Mexico Border Hispanics
Funding Agency:	National Institute on Minority Health and Health Disparities
Period of Funding:	March 1, 2003 – February 28, 2008
Amount:	$547,645 (total direct)

Name:	Serum Leptin Values in Mexican Americans: Association with Body Fat, Body Mass Index, and Obesity
Funding Agency:	University of Texas Health Science Center at San Antonio
Period of Funding:	September 1, 2004 – August 31, 2005
Amount:	$39,614 (total direct)

Name:	Partnership between the Texas Cancer Registry and the UTSPH-B for Assuring Timely, Complete and Accurate Cancer Data in the LRGV
Funding Agency:	Texas Cancer Council
Period of Funding:	March 1, 2005 – August 31, 2006
Amount:	$146,011 (total direct)

Name:	Supplement - Interrelationships of Hormones, Diet, Body Size, and Breast Cancer Among Hispanic Women
Funding Agency:	Department of Defense
Period of Funding:	August 8, 2005 – August 31, 2007
Amount:	$79,161 (total direct)

Conclusions

The overall goal of this Minority Institution Partnership Training Award is to further strengthen the collaborative relationship between the minority institution, UTB, and the collaborating institution, UTSPH. The UTSPH established a regional campus on the UTB campus in 2001, and the Co-Principal Investigator of the partnership from UTSPH is located in Brownsville. The vision of UTB and the UTSPH, Brownsville regional campus is to conduct community-based participatory research in areas deemed important by the community.

The training program will focus on breast cancer etiology, specifically the interrelationships between hormones, diet, body size and breast cancer among Hispanic women. The Lower Rio Grande Valley (LRGV) of Texas is an exceptional location to perform breast cancer research because 85 percent of the population is Hispanic. Hispanic women in the LRGV have a relatively low incidence of breast cancer compared with non-Hispanic white women. In comparison with Hispanic women in the US, Hispanic women residing in the LRGV have a higher mortality from breast cancer. In contrast, Hispanic women are at greater risk of insulin resistance. This research will allow us to investigate whether the reduced risk of breast cancer among Hispanic women in the LRGV may be related to their higher genetic susceptibility to insulin resistance. Women tend to develop insulin resistance if they are genetically susceptible, gain excess weight due to physical inactivity, and consume a high-fat, low-fiber diet during adolescence and adulthood. It is clear that this area of research has promise with regard to explaining the different breast cancer incidence and mortality rates by ethnicity. We hypothesize that the South Texas Women's Health Project conducted as part of the training program will be useful in identifying factors associated with decreased breast cancer risk among Hispanic women.

While faculty from UTSPH have expertise in breast cancer research, faculty from UTB have strong ties with the medical and lay community in Brownsville and Cameron County. To date, no breast cancer research has been conducted in Cameron County. By partnering together, these institutions hope to achieve the following goals: 1) develop a regional cancer registry, 2) build infrastructure to conduct population-based case-control studies of breast cancer, 3) initiate studies to investigate factors which may protect Hispanic women from breast cancer, and 4) establish an outstanding breast cancer research program.

References

Sanderson M, Fernandez ME, Dutton RJ, Ponder A, Sosa D, Peltz G. Risk behaviors by ethnicity and Texas-Mexico border residence. Ethnicity Dis 2006;16:514-520.

Coker AL, Sanderson M, Fadden MK. Psychosocial stress, coping and prostate cancer. Ethnicity Dis (In Press).

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Sanderson M, Daling JR, Malone KE, Doody DR. Perinatal factors and mortality from breast cancer. Cancer Epidemiol Biomark Prev (In Press).

Statement of Work

Interrelationships of Hormones, Diet, Body Size and Breast Cancer among Hispanic Women

Phase 1: Training phase (Year 1)

1) Complete coursework toward Master's of Public Health degree
2) Liaise with local medical providers, health clinics and state health agencies to encourage reporting of breast cancer to the Texas Cancer Registry
3) Identify sites for data collection with local health providers and health clinics
4) After consultation with local health providers design a case-control study to include completion of a questionnaire, urine collection, anthropometry and a blood draw
5) Develop a questionnaire appropriate for use with the local Hispanic population
6) Design protocols for data collection, laboratory work, tracking system, data entry programs, and write manual of operations
7) Initiate institutional review board approval through local and federal channels
8) Pilot test study methods and revise the study design as needed

Phase 2: Investigation Phase (Years 2 through 4)

1) Identify and recruit 500 breast cancer cases and 1000 controls identified by mammography centers
2) Complete questionnaires to obtain information on breast cancer risk factors, personal health history (e.g., type 2 diabetes), medication history (e.g., estrogen and insulin), and diet
3) Collect anthropometric measurements and pre-diagnostic blood
4) Abstract medical records for relevant health history and pathology data
5) Process and store blood samples
6) Complete enzyme-linked immunosorbent assays for insulin, insulin-like growth factor-I, insulin-like growth factor binding protein-3, and sex hormone-binding globulin, enzyme immunoassays for estradiol and estrone, and measure glucose on a biochemistry analyzer
7) Complete high-performance liquid chromatography (HPLC) analysis for urinary phytoestrogens
8) Complete data entry of all questionnaires and assays
9) Perform interim statistical analyses at end of year 2 to assess data quality
10) Perform final statistical analyses to test study hypotheses
11) Consult with local health providers and health clinics regarding the cancer reporting mechanism and provide training as needed
12) Expand data collection to cancers other than breast cancer as a means of developing a regional Lower Rio Grande Valley cancer registry.
13) Disseminate findings to the Texas Department of Health, the Department of Defense, and local health providers and health clinics
14) Prepare manuscripts to report study results
15) Archive dataset for future analyses and future patient follow-up
16) Submit proposals to conduct larger population-based case-control studies of breast cancer in the Lower Rio Grande Valley

Risk Behaviors by Ethnicity and Texas-Mexico Border Residence

Maureen Sanderson, Maria E. Fernandez, Ronald J. Dutton,

Arlette Ponder, Dina Sosa, Gerson Peltz

Objective: To determine whether residence on the Texas-Mexico border would modify the effect of ethnic differences on risk behaviors.

Design: We performed an analysis of 1999-2003 cross-sectional data from the Texas Behavioral Risk Factor Surveillance System (BRFSS).

Setting: 15 Texas-Mexico border counties compared with 239 Texas non-border counties.

Participants: 521 white and 1,722 Hispanic residents of Texas-Mexico border counties and 16,904 white and 4,933 Hispanic residents of Texas non-border counties.

Main Outcome Measures: Health risk behaviors including overweight, obesity, physical inactivity, fruit or vegetable consumption, heavy drinking, binge drinking and smoking.

Results: Hispanic women and men were more likely to be overweight, obese, and physically inactive, and less likely to consumer fewer than 5 fruits or vegetables per day than whites regardless of residence. Ethnic differences in heavy and binge drinking differed by residence and gender. After adjustment for age, educational level, annual household income, perceived general health and diabetes, most behaviors that were higher or lower remained significant among non-border residents, but were no longer significant among border residents.

Conclusions: The only evidence of effect modification was binge drinking among males and most associations were weaker among border residents than among non-border residents.

Stress, Coping, Social Support and Prostate Cancer Risk among

Older African-American and Caucasian Men

Ann L. Coker, PhD, Maureen Sanderson, PhD, Mary K. Fadden, MPH

Objectives: While psychosocial stress and high effort coping have been associated with a reduced immune function, no epidemiologic study has addressed psychological stress and risk of prostate cancer. The purpose of this analysis was to investigate the association between stress, coping, social support and risk of prostate cancer among older (age 65-79) men.

Design: Population-based case-control study. Setting: South Carolina.

Participants: Cases were 400 incident, histologically confirmed prostate cancer cases identified through the South Carolina Central Cancer Registry between 1999 and 2001 (70.6% response rate). Controls were 385 men identified through the 1999 Health Care Financing Administration Medicare beneficiary file for South Carolina (63.8% response rate).

Main Outcome Measures: Consenting participants completed telephone interviews addressing demographics (age, race, income, education, marital status, body mass index), medical and prostate cancer screening history, stress (Global Perceived Stress), coping (John Henryism Scale), and social support.

Results: After adjusting for age, race and South Carolina region, higher John Henryism (JH) scores (range 3-15) were modestly associated with prostate cancer risk yet not in a dose dependent manner. The adjusted odds ratio [aOR] comparing the highest JH scores (29-30) with the lowest (7-13) was 1.51 (95% confidence interval [CI] = 1.00, 2.29) and 1.70 (95% CI = 1.17, 2.73) for the comparison of intermediate JH scores (14-28) with the lowest scores. This association was somewhat stronger among African American men (aOR = 2.19 (1.07, 4.48). Higher JH scores were associated particularly with prostate cancer risk among men with

intermediate levels of social support. Neither higher stress nor social support scores were associated with prostate cancer risk.

Conclusions: Higher John Henryism scores indicating high effort coping may be associated with an increase in prostate cancer risk particularly among those with less social support.

A Multilevel Analysis of Socioeconomic Status and Prostate Cancer Risk

Maureen Sanderson, Ph.D., Ann L. Coker, Ph.D., Adriana Perez, Ph.D.,

Xianglin L. Du, Ph.D., Gerson Peltz, M.D., Mary K. Fadden, M.P.H.

Purpose: We investigated whether prostate cancer was associated with socioeconomic status (SES) at the individual-level, the area-level or a combination of both levels.

Methods: This population-based case-control study of prostate cancer among men aged 65-79 years was conducted between 2000 and 2002 in South Carolina. Complete interviews were available for 407 incident prostate cancer cases and 393 controls (with respective response rates of 61% and 64%). We used educational level to measure individual-level SES, and a composite variable capturing income and education from 2000 Census data to measure area-level SES.

Results: After adjustment for race, age, geographical region, and PSA testing, men with some college were at reduced risk of prostate cancer (odds ratio [OR] 0.44, 95% confidence interval [CI] 0.27-0.72) as were men in the highest quartile of area-level SES (OR 0.52, 95% CI 0.34-0.80). When assessing individual-level and area-level SES simultaneously and accounting for their non-independence, the independent negative associations persisted and appeared to be more striking among men diagnosed with localized disease rather than advanced disease.

Conclusions: The independent effects of area-level and individual-level SES on prostate cancer risk seen in our study may help explain the conflicting results of previous studies conducted at both levels.

A case-control study of farming and prostate cancer in

African-American and Caucasian men

Tamra E Meyer, Ann L Coker, Maureen Sanderson, and Elaine Symanski

Objectives: To determine the risk of prostate cancer associated with farming by duration, recency, and specific activities among African-Americans and Caucasians.

Methods: This population-based case-control study had information on farming-related activities for 405 incident prostate cancer cases and 392 controls matched on age, race, and region in South Carolina from 1999-2001. Histologically confirmed, primary invasive prostate cancer cases between the ages of 65-79 years were ascertained through the South Carolina Central Cancer Registry. Appropriately matched controls were identified from the Health Care Financing Administration Medicare Beneficiary File. Data were collected using computer assisted telephone interviewing and adjusted odds ratios (aOR) were estimated using unconditional logistic regression.

Results: Farming was associated with increased risk of prostate cancer in Caucasians (aOR=1.8; 95% Confidence Interval [CI]=1.3-2.7) but not African-Americans (aOR=1.0; 95% CI=0.6-1.6). Among specific farming activities, farmers who mixed or applied pesticides had higher prostate cancer risk (aOR=1.6; 95% CI=1.2-2.2). Increased risk of prostate cancer was only observed for those farming fewer than 5 years.

Conclusions: Increased risk of prostate cancer for farmers in this study may be attributable to pesticide exposure. Racial differences in the association between farming and prostate cancer may be explained by different farming activities or different gene-environment interactions by race.

Perinatal factors and mortality from breast cancer

Maureen Sanderson, Janet R. Daling, David R. Doody, Kathleen E. Malone

Inverse associations have been reported between birthweight and subsequent mortality from circulatory disease and diabetes among women. In the current study, we assessed whether perinatal factors were associated with mortality from breast cancer. This follow-up study consists of breast cancer cases who participated in two population-based case-control studies of breast cancer in women age 44 or younger conducted between 1983 and 1992 in three western Washington counties. This analysis is restricted to the 1,024 cases or their proxies who completed a supplementary questionnaire on perinatal factors from 1994 to 1996. The mean and median length of follow-up among living cohort members was 153 months and 148 months, respectively. Relative to women who were first born, women who were born second or higher in the birth order appeared to have lower mortality from breast cancer (hazard ratio [HR] = 0.2, 95% confidence interval [CI] 0.2-0.3). In contrast, maternal age of 35 years or older (HR = 1.7, 95% CI 1.1-2.8) was associated with higher breast cancer mortality relative to a maternal age of less than 25 years. Birth order modified the effect of maternal age on mortality from breast cancer (p=0.03). There was evidence of increased breast cancer mortality for birthweight of 4000 grams or more (HR = 1.8, 95% CI 1.0-3.1) and twin membership (HR = 2.5, 95% CI 1.0-6.2). The protective effect of being born second or higher in the birth order against breast cancer mortality regardless of maternal age is striking and needs to be confirmed in future studies.

Insulin Resistance and Breast Cancer

Maureen Sanderson, PI

The primary purpose of this proposed pilot study is to investigate the association between insulin resistance and breast cancer risk. We hypothesize that 1) insulin resistance, defined as high levels of insulin and glucose or type 2 diabetes, will be positively associated with breast cancer, and 2) the insulin resistance-breast cancer association will be more pronounced among women with abdominal obesity and high levels of estradiol (E2). The specific aims of the proposed case-control study are: 1) to obtain information on type 2 diabetes, waist and hip circumference, body mass index, body fat content, birth weight, age at which adult height was achieved, diet, physical activity, and weight gain, and to collect pre-diagnostic blood, 2) to assay blood for E2, sex hormone-binding globulin, insulin, glucose, and triglycerides, and 3) to perform statistical analyses to assess the association between insulin resistance and breast cancer risk, while accounting for confounding and interaction. This proposed study will be conducted in three mammographic centers. We plan to recruit 390 incident breast cancer cases and 390 control women. Breast cancer cases will be those women identified as having breast cancer through diagnostic mammography prior to undergoing treatment. Control women will be those women who are cancer free through screening mammography. In addition, control women will be at low risk of breast cancer defined as having no previous lesions that place her at higher than minimal risk, and no first-degree relative with a history of breast cancer or other hormone-related cancer. Insulin resistance may be associated with breast cancer, and may help explain the elevated risk of breast cancer among certain ethnic groups. Despite being at greater risk of insulin resistance, Hispanic women have a relatively low incidence of breast cancer. This proposed study may be useful in identifying factors assciated with decreased breast cancer risk among Hispanic women.

Cancer Disparities, Reporting and Prevention among Texas-Mexico Border Hispanics

Maureen Sanderson, PI

Specific aims of the Cancer Disparities, Reporting and Prevention among Texas-Mexico Border Hispanics Core are: 1) to identify cancers for which health disparities exist in this population, 2) to develop a regional cancer registry for the Lower Rio Grande Valley (LRGV) of Texas, 3) to conduct epidemiological studies of these cancers, and 4) to develop and test culturally sensitive primary and secondary interventions to reduce the burden of cancer in this population. We received an R21 from the National Cancer Institute to assess cancer disparities by utilizing data from the Texas Cancer Registry to investigate the association between neighborhood socioeconomic status and cervical cancer survival. We received funding from the Texas Cancer Council to improve cancer reporting by piloting data collection from pathology labs in the LRGV and in the Mexican state of Tamaulipas. We completed a pilot study funded by the National Center for Minority Health and Health Disparities and are currently funded by the Department of Defense to conduct a clinic-based case-control study of the association between insulin resistance and breast cancer. We are currently conducting a cohort study to determine knowledge gaps and information needs of women who are diagnosed with high-risk human papillomavirus (HR-HPV) and therefore at high risk of cervical cancer. To date we have completed in-depth interviews with health care providers to explore their attitudes and perceptions about women who have HR-HPV and the perceived needs of HR-HPV positive women. We have also completed in-depth interviews with women who were diagnosed with HR-HPV to identify knowledge gaps, attitudes, related behaviors and the perceived impact of a HR-HPV diagnosis. We are currently conducting focus groups with women and men to assess the acceptability of: 1) an informational brochure which some of the women will receive as an

intervention, 2) self-collection of samples, and 3) partner participation in interviews and self-collection of samples. Upon completion of the focus groups we will begin conducting initial telephone interviews with women who have been diagnosed with HR-HPV, and follow-up interviews at 6 and 12 months. Information will be used to develop meaningful interventions for women with and without HPV and provide health care professionals with appropriate educational materials for patients. We have received funding from the Centers for Disease Controls and Prevention to develop a secondary intervention for colorectal cancer screening among Texas-Mexico border residents. Results of these studies will help us identify cancer disparities, improve cancer reporting, and develop interventions in an attempt to prevent cancer in the LRGV.

Serum Leptin Values in Mexican Americans: Association with

Body Fat, Body Mass Index, and Obesity

Gerson Peltz, PI

The role of leptin in human obesity remains controversial. Leptin, the protein encoded by the *ob* gene, is produced in adipose tissue and released into circulation. Leptin interacts with a number of hypothalamic neuropeptide systems to regulate both feeding behavior and energy expenditure. Serum and plasma leptin concentrations are highly correlated with adiposity and body fat stores. However, the presence of high serum or plasma leptin concentrations in most obese subjects has been interpreted to suggest that human obesity is most often associated with resistance to the actions of leptin.

In population-based studies, limited attention has been paid to the relationship of leptin concentrations with body composition measures other than body mass index. However, since body mass index does not accurately measure adiposity, the effects of adiposity on leptin concentration may be more pronounced when more reliable methods are used to measure total body fat content. Additionally, the relationship between leptin concentration with body fat distribution is inconsistent. In contrast with metabolic syndrome, it is not sufficiently clear the correlation of central obesity with leptin concentration. Studies comparing ethnic groups thus far have shown conflicting results.

The proposed pilot project will investigate a) the correlation of serum leptin concentration with body fat content using bioelectrical impedance analysis, a more accurate tool to measure adiposity, and b) the correlation of serum leptin concentration with body fat distribution. In addition, the proposed pilot project will assess body composition using bioelectrical impedance analysis in a large sample of young Mexican American adults.

The Lower Rio Grande Valley is an area with high rates of nutrition related disorders, such as obesity and type-2 diabetes mellitus. The implementation of the proposed pilot project will be instrumental for developing further nutritional epidemiologic studies at The University of Texas at Brownsville. Along with the primary objectives, the proposed project will a) provide opportunities to enhance and expand biomedical research to undergraduate and graduate underrepresented students in order to promote awareness of biomedical careers, b) provide an excellent opportunity to develop a comprehensive community educational awareness program that will augment existing health education programs being viewed by health care workers and the general public, c) contribute to develop the infrastructure to support biomedical research and d) increase in the pipeline of students pursuing a science track leading to biomedical careers.

Partnership between the Texas Cancer Registry and the UTSPH-B for Assuring Timely, Complete and Accurate Cancer Data in the Lower Rio Grande Valley of Texas

Maureen Sanderson, PI

The Texas Cancer Registry (TCR) is one of nine state registries that have not achieved silver or gold certification through the North American Association of Central Cancer Registries (NAACCR). The Border region has one of the lowest completeness of case ascertainment and highest percentage of death certificate only cases in the state. Delays in reporting and failure to report outpatient cases may be due to Border residents being diagnosed, treated and/or dying in Mexico never to appear on the TCR. In addition to problems related to timeliness, quality and completeness of cancer reporting, the existing Certified Tumor Registrar (CTR) workforce in Texas is aging, with few young entrants into the profession. American College of Surgeons (ACoS) facilities will be required to have a CTR performing or supervising their tumor registration activities in order to maintain ACoS certification. An increasing number of facilities must report to the TCR and many facilities, especially those in rural areas, have expressed difficulty in attracting and retaining CTRs. The goals of the proposed project which focuses on the Border region of the state are: 1) to improve cancer registration and cancer data, and 2) to build capacity for a qualified cancer registration workforce. To accomplish the first goal we (the University of Texas-Houston School of Public Health at Brownsville – UTSPH-B) are proposing to partner with the TCR, the Texas A&M Health Science Center-School of Rural Public Health (SRPH), the University of Texas Health Science Center at San Antonio Laredo campus (UTHSC-SA), and San Antonio Cancer Institute (SACI) to utilize different methods for improving cancer registration. To accomplish the second goal we are proposing to partner with the TCR, the University of Texas at Brownsville (UTB), and the UTHSC-SA Laredo campus,

and SACI to build cancer registration capacity. Objectives of the proposed project are: 1) to pilot the feasibility of electronic pathology laboratory reporting from independent labs that perform diagnostic confirmation of cancer among Border residents, 2) to investigate the possible reporting of pathologic diagnoses for Border residents being performed across the Border, 3) to investigate the feasibility of identifying and obtaining information on Border residents with cancer who die in Mexico, 4) to train project staff to conduct cancer surveillance activities, and 5) to design a Bachelor of Science in Health Information Management degree with an emphasis in tumor registration to be offered through allied health schools. These activities will help improve the completeness of cancer case reporting and death information needed for survival analyses in the Border region, and will be replicated elsewhere in the state. The partnerships of three health science centers, an undergraduate institution, and a cancer institute with the TCR will assist in providing needed information for cancer research, prevention and control activities, and in moving the TCR closer towards achieving national gold certification. These partnerships should also lead to collaborations that will utilize data from the TCR to accurately assess the cancer burden within the state. We would like to include the Texas Cancer Council in our partnerships to improve cancer registration and to build capacity for a qualified cancer registration workforce in the Border region.

Urinary Excretion of Phytoestrogen and Breast Cancer among Hispanic Women

Gerson Peltz, PI

Phytoestrogen intake, measured as dietary consumption of phytoestrogens or as urinary excretion of phytoestrogens, has been found to be protective against breast cancer, especially in populations that consume large amounts of soy. Despite possessing many risk factors for breast cancer, Hispanic women have a relatively low incidence of the disease. A possible explanation for the lower risk of breast cancer among Hispanic women is their high consumption of grains rich in phytoestrogens. We hypothesize that high phytoestrogen intake, as measured by urinary excretion of phytoestrogen, will be protective against breast cancer in a population of Hispanic women. We propose to add urine collection and assessment of urinary excretion of phytoestrogen, another measure of phytoestrogen intake to the ongoing South Texas Women's Health Project, to more accurately reflect consumption of phytoestrogen-rich foods by women in our population. Specific aims of the proposed pilot project are: 1) to determine phytoestrogen intake by measuring urinary excretion of phytoestrogens on a sub-sample of 400 cases and 400 controls participating in our ongoing case-control study of breast cancer, 2) to investigate association between dietary consumption of phytoestrogen, urinary excretion of phytoestrogen, and blood levels of hormones and growth factors among controls, and 3) to evaluate whether phytoestrogen intake reduces breast cancer risk. We will add urine collection from subjects to the ongoing South Texas Women's Health Project. We will perform assays on urinary excretion of phytoestrogen on a sub-sample of 400 cases and 400 controls. We will conduct statistical analyses to evaluate phytoestrogen intake and its relation with hormones, growth factors and breast cancer. The proposed pilot project to be conducted within an ongoing case-control study will be one of very few breast cancer studies that have focused on Hispanic women. The

identification of protective factors against breast cancer among Hispanic women may contribute to our understanding of the biological mechanisms of the disease.